

FENGER. (C.)

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Compliments of the Author.

CHRONIC
Peri-Uterine Abscess,
AND ITS
Treatment by Laparotomy.

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CHRONIC PERI-UTERINE ABSCESS AND ITS TREATMENT BY LAPAROTOMY.¹

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A PERI-UTERINE abscess of the broad ligament or parametritic abscess, is the result of an inflammation in the connective tissue surrounding the uterus. This inflammation is always caused by invasion of septic material from an injured place in the mucous membrane of the female genital tract. A septic lymphangitis (Mundé²), or phlebitis will here, as anywhere else in the body, be the initial stage. If this septic invasion happen to strike a pre-formed uterine hæmatocele, it finds fertile soil for development, and consequent transformation of the hæmatocele into an abscess. If there is no pre-formed hæmatocele then the loose connective tissue of the lateral ligament (where an œdema may be easily developed with its exudation of serous fluid), furnishes a soil as well adapted to the cultivation of the septic microbes as the blood in the hæmatocele. Both this serous exudate and blood of the hæmatocele give the same facilities for development as the fluids in the glasses in the experimental laboratories.

The parametritis of Virchow or pelvic cellulitis of Barnes is consequently of very common occurrence, and although this inflammation takes a light and benignant course in the majority of cases, yet it may lead to the most grave and difficult cases with which the surgeon has to deal. I have never seen this better expressed than in the words of Emmet, who says:⁴ "I

¹ Read before the Gynæcological Section of the American Medical Association, 1885.

² American Journal of Obstetrics, Oct., 1883, p. 1009.

³ Clinical History of the Medical and Surgical Diseases of Women, London, 1873.

⁴ Principles and Practice of Gynæcology, p. 258.



do not exaggerate when I claim that pelvic cellulitis is by far the most important form of pelvic inflammation with which woman is afflicted."

This suppurating parametritis, whether connected with the puerperium or not, may, like lymphangitis or phlebitis in other parts of the body, lead to the formation of abscesses not only at the point of invasion, but also in more remote parts, probably from suppurating lymph glands. Only in this way can we account for the fact that in a number of the parametritides, especially in those connected with the puerperium, the abscess often forms in the loose retro-peritoneal tissue of the iliac fossa, and can be opened by an extra-peritoneal operation, either at Poupart's ligament or at any place along the brim of the pelvis. This form of suppuration takes, almost always, an acute course, while, if the abscess is formed in the uterine half of the broad ligament, or in the antero, or retro-uterine connective tissue, it is more apt to take a chronic course as a considerable thickening of the connective tissue surrounding the pus, is apt to take place, and, so to speak, encapsulates the abscess.

I shall limit my remarks to the latter form of pelvic abscess, in the locality immediately surrounding the uterus, where Sinety¹ describes his "inflammation circum-uterine proprement dite."

An abscess in this place is apt to perforate into the rectum or bladder, or into some part of the genital tract, usually into the vagina.

In a number of cases, the evacuation of the abscess, whether spontaneous or artificial, will be followed by retraction of the abscess wall, and cure; but there remain some cases in which the abscess does not close. Whether insufficient outlet or invasion of new septic material from the perforation opening, causes the abscess to continue, is immaterial; the fact remains that a number of such cases exist, and that if not overcome by surgical treatment, the patient's life will slowly but surely be destroyed in one of the following ways:² The continued sep-

¹ *Progrès Médicale*, 31, 32, 1882, *Virchow-Hirsch Jahresbericht*, 1883, Band. 2, Abth. 3, p. 530.

² Schroeder, *Krankheiten der weiblichen Geschlechtsorgane*, Ziemssens Handbuch der speciellen Pathologie und Therapie, part 29-30, p. 436.

tic inflammation in the cavity will cause chronic septicæmia and destroy life under the symptoms of so-called hectic fever;¹ amyloid degeneration of the spleen, kidneys, and liver, will cause the patient to die under the symptoms of hydrops and uræmia;¹ more rarely, it may be, according to the general opinion of authors (Schröder and others), that a tuberculosis will develop secondarily in the abscess wall (I am more inclined to believe, however, that such an abscess is a tuberculosis from the beginning)¹, finally an acute gangrenous septic inflammation may set in in the cavity and cause death in a very short time under the symptoms of an acute typhoid condition.

Considering the grave prognosis of chronic peri-uterine abscess, whether it has an outlet or not, we are justified in resorting to even the most serious surgical procedures to prevent the otherwise certain fatal termination.

There are two ways in which such an abscess may be attacked with a view to effect free opening, drainage and washing out from the vagina or from above the pubes, with or without opening the abdominal cavity.

Schröder² advocates the operation through the vagina even in cases where the abscess does not point in this direction, and where it has opened into the rectum; he cuts through the vagina in the lacunar, and dissects up along the uterus, keeping close to the latter, until the abscess is reached.

From above the pubes the abscess can be reached when it has perforated into the bladder, by opening into the latter by the *sectio alta* (as performed by Schröder).³

In the rather rare cases in which an ante-uterine abscess has pressed the pubic fold of the peritoneum upward toward the umbilicus, the abscess can be reached by an incision in the median line above the bladder.

The most important and effectual operation for chronic peri-uterine abscess, namely, attacking the abscess through the abdominal cavity by means of laparotomy, we owe to Lawson

¹ Schröder, *Krankheiten der weiblichen Geschlechtsorgane*, Ziemssens Handbuch der speciellen Pathologie und Therapie, part 29-30, p. 436.

² *Zeitschrift für Geb. und Gyn.* Bd. 8, p. 120-121: Virchow-Hirsch Jahresbericht Bd. 2, Abth. 3, p. 530.

³ *Op. cit.*

Tait.³ Occasionally in former years it happened that a large peri-uterine abscess, that had been mistaken for an ovarian tumor or a uterine fibroid, was cut down upon by laparotomy, opened and evacuated, and as extirpation of the sac, as a matter of course, was an impossibility, the walls of the sac were united with the abdominal wound, and quite a number of these cases recovered. But Lawson Tait has the merit of being the first man, who, with full knowledge of the diagnosis, systematically made use of laparotomy to bring such cases to a successful termination, and he is able now, in 1885, to report as many as thirty cases of such operations without a single death.²

Before attempting to discuss the relative value of the different operations mentioned above, and before entering into the details of the operative procedure, I shall report the following three cases of chronic peri-uterine abscess communicating with the rectum, which have come under my observation during the last two years, and which I have treated by laparotomy:

CASE I. Chronic tuberculosis of right broad ligament—Tuberculous abscess communicating with rectum, of nine months' standing—Intermittent discharges through the rectum, and intermittent attacks of fever—Great emaciation—Laparotomy—Sac united with abdominal wound—Two ounces of tuberculous tissue removed from cavity—Remainder of tuberculous contents destroyed by caustic potash—Recovery from operation—Small recto-abdominal fistula remaining—Death sixteen months later, under symptoms of chronic ulcerating tuberculosis of intestinal canal—No autopsy.

In March, 1883, I was called by Dr. T. S. Bidwell to see Mrs. O. I am indebted to Dr. Bidwell for the following previous history of the case:

The patient is 27 years of age. She was married in 1879. Six months later she had an attack of what seemed to be severe pelvic cellulitis, which lasted for several weeks, but subsided under rest and treatment. On examination at this time, the uterus was found to be fixed, painful to the touch, as if bound down by adhesions, and a little lower down than normal. The uterus remained immovable after the subsidence of the cellulitis. In July, 1880, she was taken with bowel

³ Pathology and Treatment of Diseases of the Ovaries, 1883, p. 344.

² Medical Record, Jan. 3, 1885, p. 1.

and stomach trouble, with severe pain in the inguinal regions, vomiting and diarrhoea, which lasted for several weeks. She was fairly well during 1881 and the spring of 1882. In the latter part of 1882, however, she had considerable severe pain in the bowels, followed by a discharge of pus from the rectum.

On examination, a tumor was found in the abdomen, a little to the right of the median line, just below the umbilicus. The tumor was about the size of the fist, hard, immovable, painful on pressure. It was supposed that the patient was suffering from pelvic cellulitis, and that a pelvic abscess had been formed which had opened into the rectum. On rectal examination, however, no opening could be found. The discharge of pus from the rectum has continued, from time to time, until now. During the winter of 1882, she had a severe fit of sickness, resembling typhoid, with morning and evening temperature, pains in the abdomen, diarrhoea, and discharge of pus from the rectum, from which she recovered in about three weeks.

On examination, I found the patient considerably emaciated; pulse, 100; temperature, 101°. She complained of pains in the lower part of the abdomen when walking, and stated that once in every two or three weeks the pain increased, accompanied by more fever than usual, and, after this condition had lasted for about a week, there would be a considerable discharge of pus from the rectum, followed by relief from the pain and fever. Heart and lungs, normal; abdomen not enlarged. In suprapubic region was an immovable tumor, about the size of the fist, in the median line, extending a little farther to the right than to the left side. On vaginal examination, I found the uterus immovable, the vaginal portion pressed to the left side, and firmly connected with a hard tumor in the region of the right broad ligament. It was impossible exactly to define the limits of the uterus, as it formed with the tumor one immovable mass. On rectal examination, the tumor could be felt to the right of and behind the vaginal portion, but no perforation opening into the rectum could be reached. The patient complained of constant diarrhoea, accompanied by griping pains preceding defecation.

Diagnosis.—Peri-uterine abscess in right broad ligament, communicating with rectum. As there was no place in the vagina where any soft part, or anything like fluctuation, could be felt, I decided to perform laparotomy, with a view of draining the abscess, and, if possible, closing up the cavity.

July 10, assisted by Drs. Bidwell, Lachmann, Verity, and others, I proceeded to the operation. After the usual preparations for laparotomy, the patient was anæsthetized, and an incision made in the me-

dian line, from an inch above the symphysis to two inches below the umbilicus. When the peritoneal cavity had been opened, a round, red tumor, covered with peritoneum, presented itself in the median line. It was three inches broad, three inches high, and was surrounded by closely adherent intestines and omentum; hard to the touch, having no fluctuating or soft parts. The fallopian tubes and the ovaries could be neither felt nor seen, and a gynecologist present stated, as his opinion, that the tumor was an enlarged uterus, and that there was no abscess. The needle of a hypodermic syringe was introduced in several places, but blood, and no pus, was withdrawn into the syringe. Having thus failed to find the abscess, I endeavored, by moving the needle in various directions, to find a cavity, empty, of course, but in which I could move the needle around. Finally I thought I had discovered such a cavity, and so cut in on the needle. The knife passed through a thick layer of firm, elastic, connective tissue, and finally penetrated a cavity, from which a few drops of grayish pus came out. When this opening had been dilated sufficiently to admit the finger, I could feel a cavity filled with a cauliflower-like mass of friable tissue, in the midst of which was a canal; through this canal the finger passed down into the rectum, meeting the finger of one of the gentlemen present, which had been introduced through the anus. I then enlarged the opening, and saw a large cavity filled with irregular masses of friable, grayish-red tissue, bleeding only a little on pressure, and resembling the irregular surface of a sarcomatous tumor. I really considered the case to be one of malignant tumor, and that its entire removal was impossible. At the same time, I decided to scrape out as much of this mass as I conveniently could, and so removed, with the sharp spoon, about two ounces of the grayish, somewhat friable substance. The cavity then presented rather grayish walls, from which there was only slight hemorrhage, and at the bottom of which was seen an opening, sufficient for the passage of two fingers, leading to the rectum.

The walls of the cavity were disinfected with ten per cent. solution of chloride of zinc; the walls of the sac united with the lower end of the abdominal wound by means of a double row of sutures, and the remainder of the abdominal wound closed. A heavy drainage-tube was inserted into the cavity, and the cavity around the tube packed with iodoform gauze. A heavy antiseptic dressing was now applied, and the patient brought to bed—the operation having lasted two hours and a half.

At this time, as I considered the case one of malignant tumor, and consequently hopeless, my only aim was to have the patient recover

from the effects of the operation, as I did not believe that any further treatment would be called for.

11th. The patient has passed a rather comfortable night. Pulse, 114; temperature, 98°. The dressings, when removed, are found soiled with liquid fæces, all over the abdominal wound, which was cleaned, powdered with iodoform, and redressed. Over the os sacrum is a decubitus eschar, the size of a dollar.

Concerning the rest of the after treatment, it is sufficient to say that the dressings each day were found soiled with liquid fæces. The abdominal wound healed without suppuration, and without any disturbance whatever from the side of the peritoneal cavity. A microscopical examination of the cauliflower-like tissue, removed, demonstrated, contrary to my expectations, that this tissue was not a sarcoma, but conglomerate masses of miliary tubercles. The disease, thus being proven a local tuberculosis, and consequently not necessarily fatal, made it important to attempt to destroy all the tuberculous tissue, so that the cavity might finally close up. To effect this, the following plan of local treatment was carried out: Once every day, or every two days, the mass of grayish tissue was cauterized, by Dr. Bidwell, with caustic potash. After this had been done for about two weeks, the cavity was cleared of its contents and commenced to retract, and bimanual examination showed that not more of the hard mass remained than what would correspond to a slightly enlarged uterus.

On the tenth day, the sutures of the abdominal wound were removed. In the third week, the patient was able to sit up in bed, and, a week later, could sit up in a chair—the bedsore over the sacrum being the only obstacle in the way of her recovery from the operation. The drainage-tube in the cavity was now removed. From the fistulous opening, a small amount of fæcal matter would still come, especially when the bowels were loose. In the sixth week, she was able to walk around, had a good appetite, and became daily stronger, but the bedsore did not entirely heal up until about three months after the operation.

The patient's condition remained about the same from this time on. She suffered from diarrhœa and pain in the intestines all the time. About twelve months after the operation, the pain and diarrhœa became more severe, the patient's emaciation increased, and four months later she died. No autopsy was made.

It is impossible for me to state whether this tuberculous abscess cavity was a tuberculosis developed in the fallopian tube, or in a peri-uterine abscess outside of the tube. That the tissue removed from the abscess was a conglomeration of

miliary tubercles was easily enough demonstrated by the microscope; but in most of these cases, as far as my experience goes, the tubes and ovaries are matted together with the uterus and adjacent intestines into one mass, in which it is impossible to distinguish the different organs,—in many cases even to determine which is the uterus and which the cavity, before the latter has been cut into. But tuberculosis of the tubes is much more common than tuberculosis of an extra-tubal pelvic abscess wall, as we know that the mucous membrane of the uterus and tubes is quite commonly the starting point of infiltrating tuberculosis.

In cases of this kind we cannot, of course, expect the operation to be a radical cure, as it is almost impossible to remove all the tuberculous tissue. Even if this could be accomplished, we know that of the patients with local tuberculosis, even if successfully operated upon, a large percentage (in local tuberculosis of the joints, twenty-five per cent.) will succumb sooner or later to either acute or chronic general tuberculosis of the internal organs. That this patient died sixteen months after the operation, from intestinal tuberculosis, there can be very little doubt, although no autopsy was made, as she suffered all the time from chronic diarrhœa with pain in the intestines and increasing emaciation, with no symptoms of serious disease either of the kidneys or of the organs of the thoracic cavity.

This was an unusual form of infiltrated tuberculosis, one that I had never before seen, as there was no cheesy matter in the abscess cavity, but it was filled with a voluminous proliferating mass of grayish red living tissue, resembling rather a cauliflower form of carcinoma or sarcoma than tuberculosis.

The rapid formation of a large bed-sore proved that the patient was already in an extremely exhausted condition from the chronic septic fever. A rather remarkable feature in the course of the after-treatment was, that the abdominal wound healed by first intention, notwithstanding that from the very day of the operation it was continually covered with fecal matter. I believe that the treatment of the wound with iodoform protected it against the fæces.

The necessity of early operation before a chronic abscess of this kind has had time to cause amyloid degeneration of the

internal organs, and so to frustrate any surgical effort at a cure, is well illustrated by the following case :

CASE II.—*Chronic peri-uterine abscess in left broad ligament, communicating with rectum, of more than a year's standing—Intermittent discharge through rectum—Chronic septicæmia, albuminuria, commencing anasarca—Laparotomy, with union of sac to abdominal wound—Re-opening of abdominal wound, and evacuation of four ounces bloody serum—Death, nine days after operation, from uræmia—Autopsy—Amyloid degeneration of spleen and kidneys.*

Margaret Robinson, 38 years of age, domestic, entered Cook County Hospital September 12, 1884. Family history good. Parents died in old age. Patient was married in 1872. Since that time has been troubled with uterine disease, but was otherwise healthy. Her menstrual periods commenced at 15 and have been always regular, recurring every three weeks, but the flow has been always large and painful. She has never had any children or miscarriages. Her present disease began in June, 1883, with pain in the supra-pubic region, and fever, so that she was obliged to remain in bed for several weeks, after which a sudden discharge of pus through the rectum partially relieved the pain. She was told by her doctor that she had a pelvic abscess which had broken into the rectum. She soon was able to be up and around, but was unable to do any work because of the pain and discharge of pus through the rectum, sometimes continual, sometimes intermittent, which would result from any such attempt.

During the last year she has grown weaker, and a month ago her feet began to swell at the ankles. Since this time the pain over the symphysis and os sacrum has been almost constant; the passages from the bowels have caused pain high up in the rectum; she has had fever almost every day, and occasional chills and headache. Her appetite is poor, and she has grown weaker every day. Pulse, 120; temperature, 102.6°. Ordered quinine; rectum to be washed out daily with lukewarm water.

13th. A.M. Pulse, 102; temperature, 101.2°. P.M. Pulse, 138; temperature, 103.5°. On examination we find patient pale, not extremely emaciated; slight œdema round the ankles; heart and lungs normal. Vaginal examination shows the uterus pressed forward and to the right, immovable. In left lateral ligament is a hard swelling close to the side of the uterus, and somewhat tender on pressure. In the supra-pubic region is a hard swelling three inches broad, extending to midway between the symphysis and umbilicus. Digital exploration through the rectum shows the tumor high up and to the left of the

uterus. As high up as the finger can reach—that is, three or four inches above the anus—can be felt a hard, nodulated place in the rectum, which is probably the perforating opening surrounded by granulations. Urine acid, amber colored, containing some albumen and casts.

Diagnosis. Abscess in left broad ligament, communicating with the rectum. Commencing septicæmia, albuminuria, and anasarca.

It was decided to open the abscess by laparotomy.

16th. 10.30 A.M. Assisted by Drs. Guerin, Jacobson, Murphy, Verity, and Randall, of the hospital staff, and house-surgeons Thiele and Auten, I proceeded to the operation. After the usual preparations for laparotomy, the patient was anæsthetized. The pubes were shaved, and the vagina washed out with two and one-half per cent. solution of carbolic acid. I then made an incision in the median line, from an inch above the symphysis pubis to two inches below the umbilicus. When the abdominal cavity had been opened, a dark red tumor, smooth and covered with peritoneum, was disclosed. It was round, about three inches high, and extended from a little above the symphysis to about two inches below the umbilicus, the left side being united with the sigmoid flexure. The needle of a small exploring syringe was now introduced into the tumor, but no pus could be withdrawn. On the withdrawal of the needle, however, a drop of pus came out at the opening. Antiseptic sponges were now packed around the tumor in the abdominal cavity, and an incision made through the wall of the sac. Several ounces of very fetid pus came out through the opening, whereupon the incision was enlarged, the edges seized with strong forceps, and sponges introduced to clean the cavity. A probe introduced into the cavity reached down to the posterior lacuna of the vagina. A counter-opening was made here on the end of a strong forceps, and a large drainage tube introduced through the vagina into the sac and brought out of the abdominal opening. There was slight hæmorrhage from the walls of the sac, which were covered with a soft layer of nodulated granulating tissue. This was partially scraped out and partially disinfected by a ten per cent. solution of chloride of zinc. The edges of the abdominal opening of the sac were now united to the lower end of the abdominal wound with a double row of sutures; the deeper one including only the two peritoneal layers, and the superficial one uniting the sac with the skin. The upper part of the abdominal wound was united in the usual way down to the sac. No drainage tube was inserted into the abdominal cavity, as no adhesion had been either detached or ligated. A large antiseptic dressing was applied over the abdomen, iodoform gauze having been packed around

the drainage tubes, both above the symphysis and in the vagina. The operation occupied an hour and a half.

The patient vomited twice during the afternoon. The pain in the abdomen was controlled by hypodermic injections of morphine. She complains of thirst, is warm and perspiring. A small quantity of dark greenish colored urine was withdrawn by catheter. Pulse, 140; temperature, 100.6°.

17th. 1 A.M. Pulse, 132; temperature, 101.5°. She has been delirious for two hours, and throws herself from side to side of the bed. 6 A.M. Pulse, 132, weak; temperature, 103.2°. 8 A.M. Pulse, 126; temperature, 104. She complains of pain, and there is tenderness in the right side of the abdomen, in the right, lower part of which some resistance can be felt, which was not noticeable yesterday. On removal of the dressings there is no discharge from the drainage tubes.

Thinking that the considerable rise in temperature was due to accumulation of fluid in the peritoneal cavity on the right side of the sac, I reopened the wound, under ether narcosis. Three to four ounces of bloody serum were found in the right iliac fossa, and antiseptic sponges introduced to clean the cavity, from which a number of shreds of fibrinous exudate were removed. A drainage tube six inches long was inserted and the wound reunited.

3 P.M. Pulse, 112; temperature, 101°. She has slept for two hours, but is now delirious and restless again. 7 P.M. Was quiet and talked rationally for a couple of hours in the afternoon, but soon lapsed again into delirium, and is now wild and excited, so that it is necessary to apply a strait-jacket.

18th. 7 A.M. Pulse, 118; temperature 100°. She slept quietly most of the night; talks rationally, is bright, complains of no pain, and says she feels hungry. 11 A.M. Pulse, 130; temperature, 101°. About an hour ago she became delirious and wild again, but was quieted by a hypodermic injection of morphine and atropine. The wound was dressed, and very little discharge from either drainage tube was found. All traces of iodoform were removed from the abdomen and vagina, the sac of the abscess washed out with saturated solution of boracic acid, and the wound dressed with borated cotton. 6.30 P.M. Pulse, 122, very feeble and irregular; temperature, 101°. There is subsultus tendinum. The lower jaw constantly moves and the lips tremble. At times she mutters a few unintelligible words. There has been no vomiting, and she takes considerable quantities of milk, champagne, and whiskey.

19th. 9 A.M. Pulse, 112; temperature, 99.8°. She slept a little during the night, and on awaking was quiet and perfectly rational.

Says she is hungry. Has taken hot milk, brandy and iced champagne, and retains all she takes. 12 noon. Pulse, 114; temperature, 100°. Wound was dressed. There was a slight discharge of fetid pus from the abscess cavity, and a few drops of purulent fluid from the abdominal cavity. The drainage tube into the latter was shortened two and a half inches. 7 P.M. Pulse, 126; temperature, 100°. Patient has been quiet all day, and rational. The quantity of urine, which has been drawn by catheter three times a day, is only three to four ounces, amber colored, and contains nearly fifty per cent. of albumen, and a number of granulated casts.

20th. 7 A.M. Pulse, 112; temperature, 100. She slept fairly well, and takes soup and milk in considerable quantities.

21st. 7 A.M. She was somewhat delirious during the night, but got quiet toward morning. 3 P.M. Pulse, 96; temperature in rectum, 99°. Very little discharge in the dressings. She is rational, and complains of no pain. The abdomen is soft and natural. No tenderness anywhere.

22d. 12.30 P.M. Pulse, 104; temperature in rectum, 99.5°. She was slightly delirious last night, but slept most of the time; takes considerable nourishment. The abdominal drainage tube was shortened two inches.

23d. A.M. Pulse, 110; temperature in rectum, 100°. 6 P.M. Pulse, 150, weak and small; temperature in rectum, 101.4°. She has been slightly delirious all the afternoon. Does not answer questions rationally. Her hands are cold, and she looks collapsed. 8 P.M. Pulse, 156; temperature in rectum, 101°. She is troubled with singultus; is rational now, and says she is very weak and feels sick.

24th. 2 A.M. Pulse, 130; temperature in axilla, 99.3°. Late last evening she became warmer, and slept several hours during the night. Had some diarrhoea, and most of the liquid feces came out through the vagina and the drainage tube. 6 A.M. Pulse, 136, weak; temperature in rectum, 101°. She is restless. Very little discharge in the dressings. Takes nourishment as usual, but somewhat less in quantity. 5.30 P.M. Pulse, 130, weak; temperature in rectum, 101°. Patient is in semi-unconscious condition, restless, and continually troubled with singultus. No vomiting, no evidence of peritonitis. She takes nourishment, but swallows slowly. She is warm all over the body. There is some hyperæsthesia, as the hypodermic injections cause her to complain more than usual.

25th. 7 A.M. Pulse, 140, almost imperceptible at the wrist; temperature in rectum, 106°. She has been in the same semi-comatose condition all the night. Has singultus all the time. It is difficult for

her to swallow, and the extremities begin to be cold. At 11 A.M. the patient died.

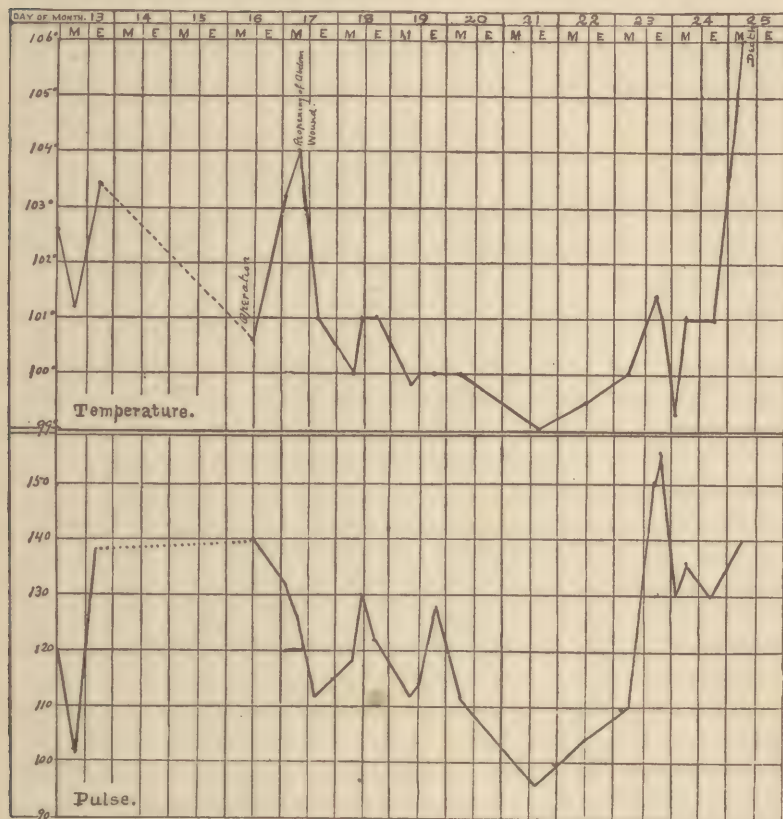


FIG. 1. CHART SHOWING TEMPERATURE AND PULSE VARIATIONS IN THE CASE OF MARGARET ROBINSON.

Autopsy—Twenty-four hours after death, in the presence of Drs. Auten, Thiele, and others of the internes. The body was not emaciated. No œdemas. Rigor mortis. No pus in the dressings. Heart and lungs normal. No fluid in the abdominal cavity. Peritoneum everywhere glistening and healthy. The peritoneal drainage tube is only one and a half inches long, and the narrow canal in which it lies contains a few drops of pus and is firmly adherent all around, and separated from the peritoneal cavity at large. Liver of normal shape and size, somewhat pale, but otherwise normal. Spleen enlarged to twice its normal size, and shows on its cut surface the features of a

typical sago-spleen—that is, amyloid degeneration of the Malpighian follicles. Reaction with iodine distinct. Kidneys of normal shape and size, capsule small, not more adherent than usual; the cortical substance somewhat pale in contrast with the dark red pyramids; the boundary between the cortical substance and pyramids distinct. Solution of iodine poured over the cut surface shows amyloid reaction of a number of the glomeruli.

MICROSCOPICAL EXAMINATION AND DESCRIPTION OF THE ORGANS OF THE PELVIS MINOR.—The microscopical examination of the kidneys shows the following: In the cortical substance in almost half of the glomeruli is found amyloid thickening of the afferent arteries and of the capillary arteries of the glomeruli. In some of them the wall of the glomerulus is thickened. There is also found a number of urinary tubules filled with solid refracting homogeneous amyloid casts, and in some places the transformation of the epithelial cells of the canals into amyloid matter can be distinctly recognized by the enlargement and homogeneous refracting appearance of the epithelial cells. In the pyramids no amyloid degeneration, either of the vessels or of the urinary tubules, is found.

The spleen presents the usual microscopical appearance of amyloid degeneration of the Malpighian corpuscles, and the walls of the arterioles leading into the latter.

The pelvic organs, removed as a whole, show the following: In the left broad ligament is an abscess, thick-walled, four inches long, three inches broad, covered with a smooth layer of peritoneum. The top of the abscess is at the height of the fundus of the uterus, and the peritoneum from the latter stretches out continuously over the abscess. From this point the abscess extends along the posterior surface of the uterus, downward and inward along the left side of the rectum. The wall of the abscess is a quarter of an inch thick, consisting of firm white fibrous tissue. Under the microscope this is found to consist of an inner layer of young connective tissue, densely infiltrated with small round cells, leucocytes, especially near the rugged inner surface of the abscess cavity. This layer is about one millimeter in thickness. Outside of this is a heavy layer of dense fibrous tissue, containing a small amount of medium-sized vessels. This layer is about four millimeters in thickness. Outside of this, nearest to the peritoneum, comes a layer about one millimeter in thickness, in which longitudinal and transverse bundles of organic muscular fibres are predominant over the connective tissue surrounding them. Outside of this is a smooth covering of peritoneum.

On the right side of the abscess wall, three inches from the top and one inch from the bottom, is an opening into the rectum, large enough to permit the passage of a goose quill (as shown in Fig. 2). The opening in the rectum is exactly four inches above the anus. The left round ligament passes along the anterior surface of the abscess, as

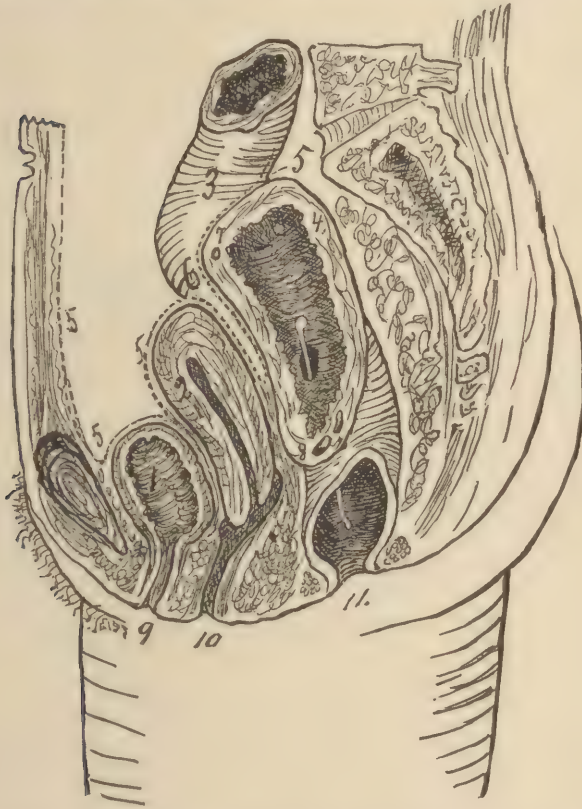


FIG. 2. SAGITTAL SECTION THROUGH PELVIC ORGANS.

1. Bladder, 2. Uterus; 3. Rectum; 4. Abscess, with opening into rectum, where probe is passed through; 5. Punctated line showing the peritoneum covering the pelvic organs; 6. Narrow space covered with peritoneum between posterior wall of uterus and anterior wall of abscess; 7. Transverse section of left Fallopian tube in abscess wall; 8. Large uterine vessels in inferior posterior part of abscess wall; 9. Urethra; 10. Vagina; 11. Anus.

shown in Fig. 3, which is situated between this and the Fallopian tube. The left Fallopian tube is twisted around and pressed against the posterior surface of the uterus, and runs down along the latter in the abscess wall. A fine probe introduced in the peripheral end of the Fallopian tube comes out into the abscess cavity. Along the right

border of the uterus is a firm longitudinal tumor (10, Fig. 3), two inches long, three quarters of an inch broad, firmly connected with the side of the body of the uterus, and covered with peritoneum continuous from the latter. A section through this tumor shows uniform reddish brown tissue, in which the canal of the right Fallopian tube is imbedded. This canal widens, downward toward the lower end of the mass, into an irregular, ragged cavity, three-quarters of an inch long, quarter of an inch broad, from the bottom of which the probe passes down into the rectum through the same opening as the abscess in the left broad ligament. Another opening passes directly from the small cavity into the large abscess cavity. In the bottom of the large abscess cavity is a large incision opening, for the drainage tube, into the cul-de-sac of the vagina.



FIG. 3. HORIZONTAL SECTION THROUGH PELVIC ORGANS AT LEVEL OF CORPORIS OR FUNDUS UTERI.

1. Fundus uteri; 2. Cavum corporis; 3. Left Fallopian tube; 4. Right Fallopian tube; 5. Ligamentum teres; 6. Abscess cavity; 7. Abscess wall; 8. Uterine vessels in abscess wall; 9. Narrow space covered with peritoneum between posterior wall of fundus uteri and anterior wall of abscess; 10. Mass of brownish red connective tissue surrounding right Fallopian tube—remainder of hæmatocele; 11. Rectum; 12. Bladder.

Between the posterior surface of the corpus of the uterus and the anterior surface of the abscess wall, there is a space or cavity three-quarters of an inch broad, an inch and a quarter deep, and one or two lines in antero-posterior diameter. This space is covered all over with peritoneum, and forms a recess or cul-de-sac extending deep down between the uterus and the abscess (6, Fig. 2; 9, Fig. 3), closed at the bottom and communicating upward with the general peritoneal cavity. It will be seen from Fig. 2 that if the operator undertakes to dissect up from the posterior lacuna along the posterior surface of the

neck of the uterus, such recesses might easily be penetrated, and the peritoneal cavity, in this way, opened.

The true situation of the abscess is readily seen in Fig. 3. It lies in the broad ligament, between the round ligament and the Fallopian tube, separating these to such an extent that the Fallopian tube is bent backward and to the right, so that it runs parallel with the posterior surface of the uterus. It will be seen, further, that the whole superficial third of the abscess is covered with peritoneum, which extends down from the abscess into the recesses between the latter and the uterus, and, further on, covers the uterus and bladder in the usual way, forming these recesses before extending over on the posterior surface of the anterior wall of the abdomen. It will be seen from this that there is no possibility of reaching the abscess from above without penetrating the peritoneal cavity.

It might be questionable whether it is justifiable to operate in a case where albuminuria and the ominous œdema of the of the legs have already developed. It is still a matter of doubt whether amyloid degeneration while yet in its initial stages, may not be made to disappear by removing the cause. The œdema round the ankles might, in cases of this kind, be due to pressure on the iliac vessels by the tumor. This would deprive it of a portion of its ominous significance.

Not to operate is to leave the patient to her fate, and I must confess that I am not sure that I should absolutely refuse to operate in an exactly similar case in future. That this patient died from uræmia, there can be scarcely any doubt, as she had no peritonitis, and as her temperature for the five or six days, immediately preceding death, and during the time of the wildest delirium, alternating with semi-comatose condition, was almost normal (vide temperature chart). This, taken together with the condition of the internal organs, as shown by the autopsy, precludes any suspicion of septicæmia. I have every reason to believe that if this patient had been operated upon in time, that is, about a year earlier, that a cure might have been effected.

That an early operation enables us to effect a comparatively speedy recovery, is well illustrated by the following case:

CASE III.—*Chronic peri-uterine abscess in left broad ligament—Perforation into rectum and intermittent discharges, of three months*

standing—No fever—Laparotomy with evacuation of twenty ounces of fetid pus—Sac united to abdominal wound—Out of bed in five weeks—A week later abscess cavity closed down to narrow fistulous opening with minimum amount of discharge—Two weeks later the fistula closed permanently.

Mrs. Inga Jenson, 29 years of age, came to me from Racine, Wis., November 26, 1884. Family history good. Parents both living and healthy. Her menses commenced in her fifteenth year, and have always been regular. She was married at 19, and a year later her first child was born, after protracted labor. For six months succeeding parturition she was confined to her bed, first suffering from fever, and local peritonitis, or severe pelvic cellulitis. During this time, also, an abscess was formed in the right breast, which was opened, and suppurated for some time. After this she felt as strong as before her illness. Two years and a half after the birth of the first child she was delivered of a second child at full term. The labor was easy. She nursed the child eleven months from the sound breast, and was well for two years subsequently. She then began to suffer from pain in the left inguinal region, of varying intensity. Early in June, 1884, she did a hard day's washing, and on the following day, house-cleaning, after which she was much prostrated, and said she felt too tired to eat or sleep. For the next nine weeks she was confined to bed on account of severe pain in left inguinal region, accompanied by some fever, which, however, subsided after a week or two. Last September she first noticed a discharge of pus from the rectum. At first the daily discharge was about half a teacupful, and occurred independently of the fecal evacuations. The discharge for some time occurred irregularly, once or twice in forty-eight hours, later on, two or three times a week, and finally, only once a week. In these two months she has had no fever, but has often suffered from attacks of pain, and felt weak and tired. She has had a fairly good appetite throughout, has slept well, and had no night sweats.

On examination, I find her pale, not emaciated; heart and lungs normal; no œdema of the lower extremities; urine normal; pulse, 78; temperature, 99.8°. In lower part of abdomen is a tumor commencing above the symphysis pubis, and extending up to an inch below the umbilicus; situated in the median line, four inches broad, and extending a little farther on the left than on the right side. Vaginal examination shows the uterus immovable, somewhat dislodged to the right, and toward the symphysis pubis. In the posterior lacuna, and in the left broad ligament, is felt a hard swelling, in which no distinct fluctuation can be detected. Bi-manual exploration shows the uterus to be united with the tumor into one immovable mass. Digital exploration through the rectum enables me to feel the tumor, but no place of perforation.

Diagnosis.—Peri-uterine abscess in left broad ligament, communicating with the rectum.

On December 3, assisted by Drs, Jacobson, Guerin, Randall, Murphy, Verity, Auten, and Thiele, I performed laparotomy. An incision was made from two inches below the umbilicus downward five inches in the median line, through the abdominal walls. The omentum that lay loose on the anterior surface of the tumor, was pushed aside, and the tumor exposed, which was covered all over with peritoneum of the color of the normal uterus. To the left it was adherent to the sigmoid flexure, and on its right side was a cyst, three inches long, and an inch and a half in diameter, with thin transparent walls. A hypodermic needle was introduced into the tumor, and a little pus withdrawn. The surrounding peritoneal cavity was packed with antiseptic sponges. an aspirator needle introduced, and about twenty ounces of very fetid, greenish, yellow pus withdrawn. A longitudinal opening an inch and a half long, was now made through the wall of the abscess, by means of the thermo-cautery. The edges of the sac were secured with forceps and sponges introduced. Slight hæmorrhage ensued from the nodulated granulating surface of the inside of the sac, but ceased after the application of ten per cent. solution of chloride of zinc. The cyst on the right side of the sac was emptied. It contained about two ounces of clear serous fluid. The opening into the sac was now united with the abdominal wound, by one deep and one superficial row of silk sutures, and two large drainage tubes, one perforated, the other not, inserted to a depth of about eight inches. The remainder of the abdominal wound was united with sutures. A heavy antiseptic dressing was applied, and the patient brought to bed. The operation lasted about two hours and a half.

4th. 6 P.M. Pulse, 102; temperature, 100.5°. She has had some pain, which was controlled by morphine. Has been rather restless, and has vomited twice; looks well, has taken some champagne.

5th. 8 A.M. Pulse, 96; temperature, 100°. Has slept for two hours at a time. There is considerable discharge of bloody fluid in the dressings. Cavity was washed out with a saturated solution of boracic acid. 9 P.M. Pulse, 100; temperature, 99.5°. She complains of pain in right iliac region, and has vomited once.

6th. 6 A.M. Pulse, 100; temperature, 99°. The pain continued the first part of the night, but the patient was relieved toward morning. 12 noon. Pulse, 108; temperature, 100.5°. There is very little bloody discharge in the dressings; some tympanites of the abdomen, but less pain and tenderness in right iliac region. 6 P.M. Pulse, 116; temperature, 102°. She has had an ounce of milk twice in the last hour.

7th. 9:30 A.M. Pulse, 108; temperature, 102°. Does not complain of any pain in the abdomen, but of pain in the back. Urine taken with a catheter is slightly alkaline, and contains triple phosphate crystals, urates, moving vibriones and pus. 3 P.M. Pulse, 114; temperature, 102.5°. 5 P.M. Pulse, 120; temperature, 103.2°. On account of this rise in temperature, I resolved to make ready to reopen the abdominal wound, but when I returned with the necessary instruments, two hours later, the pulse had fallen to 100, and the temperature, 101°, and she had no pain. I therefore resolved to wait.

8th. 8 A.M. Pulse, 104; temperature, 101°. She slept well the last part of the night, has no pain, and feels well this morning. The bladder is washed out three times a day with saturated solution of boracic acid. 6 P.M. Pulse, 104; temperature, 100.2°.

9th. A.M. Pulse, 96; temperature, 100.8°. P.M. Pulse, 96; temperature, 100°.

10th. A.M. Pulse, 98; temperature, 99°. P.M. Pulse, 100; temperature, 99°.

11th. A.M. Pulse, 104; temperature, 99.7°. She has slept well all night, and takes considerable nourishment. A small abscess in the lower end of the abdominal wound has opened through one of the sutures.

12th. A.M. Pulse, 98; temperature, 99.5°. P.M. Pulse, 100; temperature, 99.5°. From this time on pulse and temperature remained normal.

13th. All the sutures were removed.

15th. The discharge is becoming less. The tubes are beginning to be pressed out by the retraction of the abscess cavity, and are shortened two inches.

16th. Had a slight spontaneous discharge from the bowels.

19th. A considerable movement of the bowels this morning caused her some pain. The depth of the cavity is now only four inches.

26th. The patient sits up in bed. When the dressing was removed, it was found that the drainage tubes had been pressed out, and they were replaced with difficulty.

January 8th, 1885. The patient is able to get out of bed. There is very little discharge. The tubes were pressed out and replaced by a small tube, which is passed in about three inches.

14th. The patient leaves the hospital and returns home. On examination there is now found a small fistulous opening in the lower end of the abdominal wound, through which a probe can be passed in about three inches downward, backward, and to the left of the uterus. The amount of the discharge from the sinus is about one drachm in two

days. Vaginal exploration shows the uterus standing a little to the left and movable. No exudate or hardness can be felt on any of the sides. High up in the posterior lacuna above the neck, I can just reach with the tip of my finger, a movable resistant body, which feels like a string or band extending from the posterior side of the uterus, downward and backward, toward the rectum.

She has had no diarrhœa since the operation, has a good appetite, and can walk around the room all day without any pain in the pelvis whatever.

February 1st. The fistulous opening is closed.

The course of the after-treatment in this case was not so smooth as in the first case, on account of a small abscess in the lower end of the abdominal wound, and an attack of cystitis. To which of the two the rise in temperature on the fourth day after the operation was due, I am not able to state; but this rise in temperature, taken together with the pain in the right side of the abdomen, made me, at the time, regret that I had not inserted a drainage-tube in the abdominal cavity, to the right of the abscess, in the region of the cyst. I came very near re-opening the abdominal wound, fearing an accumulation of septic fluid in the right iliac fossa. The speedy retraction of the large abscess cavity and cessation of the discharge only proved that Lawson Tait¹ is right in asserting that recovery subsequent to free opening of an abscess of this kind, by laparotomy, is much quicker and more effective than when the abscess has been opened through the vagina.

In the following remarks, I desire to call attention, first, to the operation of laparotomy from a technical point of view; second, to its position as compared with other operations; and finally, to a few points in diagnosis.

I. THE OPERATION OF LAPAROTOMY. The abdominal incision, three to five inches long, in the median line, will always reach the upper convexity of the abscess, and has nothing worthy of mention, except that the abscess may be reached without penetrating the peritoneal cavity, in case the peritoneum has been pushed upward by an ante-uterine abscess. In cases of this kind, it is necessary to take care to avoid cutting into the bladder, which may have been drawn upward by the abscess wall. It is consequently necessary, when the abdom-

¹Op. cit.

inal incision is made, to have an assistant mark out the site of the bladder by a sound introduced into it. If the abscess is thus extra-peritoneal, the operation is greatly simplified, and is to be considered the same as the opening of any other abscess.

In the majority of cases, however, when the abscess is lateral or posterior to the uterus, it can be reached only by opening the peritoneal cavity—that is, by laparotomy—for which preparation has always to be made, since it is impossible to make a clear diagnosis beforehand, as far as this point is concerned.

When the abdominal cavity has been opened, we usually come right down on the sac of the abscess. If covered by omentum or intestines, these have to be pushed aside, and all possible adhesions ligated or detached. The upper surface of the sac, together with the uterus and appendices, will generally form a convex, red, smooth, more or less regular tumor, to the sides of which, outward toward the brim of the pelvis minor, loops of intestine or omentum generally adhere; but as we do not wish to extirpate the sac, we need not disturb these parts, if only a surface of two inches in diameter is clear—that is, space to admit of a sufficient opening being made into the sac, and of a sufficient margin round the opening for a double row of sutures to unite the edges with the anterior wall of the abdomen.

When the upper surface of the sac is thus clear, or has been cleared, the next step is to find some way into the sac, with due regard to the prevention of the escape of pus into the abdominal cavity. To this end, I always pack two or three large disinfected sponges around the sides of the cleared space, at the same time preventing any loops of intestine from slipping out through the abdominal incision.

We cannot expect to always find a soft or fluctuating point on the surface of the tumor, especially when the abscess communicates with the rectum or bladder, or, more rarely, with some remoter part of the intestinal canal. The sac cannot usually be distinguished, by touch or view, from the fundus of the uterus. The round tumor is uniformly elastic to the touch, feeling like a soft fibroid, or a soft, enlarged uterus. An explo-

ratory puncture has consequently to be made with the needle of a hypodermic syringe, at the point and in the direction where, from the previous examination, we expect the abscess to be, or where the tumor feels less resistant, than in other places. It is often necessary to introduce the needle several times, and in different places, before any pus can be withdrawn. In cases where the abscess has been evacuated into the rectum, or elsewhere, and the cavity is consequently empty, the needle must be moved in various directions, until a place is found in which it can be moved freely, indicating the presence of a cavity.

If pus is withdrawn, thus proving that the abscess cavity has been reached, it is advisable to effect as perfect an evacuation of the contained pus as possible. I consequently have the aspirator ready, and introduce the aspirator needle along the needle of the hypodermic syringe, which is left in the cavity, as a guide. If this precaution is not taken, it may sometimes be most difficult to find the abscess cavity a second time. The pus, which is usually fetid, is now aspirated, and the aspirator needle left in the cavity, as a guide for the knife in the incision into the sac. I advise that this incision be made by the thermo-cautery; the small, knife-shaped burner of Paquelin answers the purpose very well. I use this to avoid unnecessary hemorrhage, because it saves time, and prevents the blood, mixed with pus, from overflowing the peritoneal surface of the sac, in the wall of which the large uterine vessels may run, and we can never know where. It is well to have a small sponge ready to thrust into the sac as soon as the incision is made, because some pus is likely to flow out as soon as the sac is opened.

I then seize the edges of the incision with large, strong artery forceps; the large forceps of Billroth answers the purpose very well. By means of the forceps the opening into the sac is drawn forward, and the hæmorrhage from the surface, often nodulated and bleeding easily, checked by the introduction successively of a number of small sponges held by artery forceps. To aid in checking the hæmorrhage, and at the same time, disinfect the inner surface of the sac, these sponges may be saturated with a ten to twenty per cent. solution of chloride

of zinc, or if necessary, the inside of the cavity may be scraped out with the sharp spoon or curette. (Byford.¹)

If a counter-opening from the sac to the vagina is desired, a strong curved forceps is pushed down to the bottom of the sac till it can be felt through one of the cul-de-sacs of the vagina, through which an incision is then made by one of the assistants on the end of the forceps. The forceps is then pushed through this opening, and opened so as to dilate the latter. A heavy drainage tube is now firmly grasped by the jaws of the forceps and drawn up from the vagina through the sac and out of the abdominal incision.

The next step is then, after carefully cleaning the peritoneal surface of the sac, to unite the latter to the part of the abdominal wound nearest to it, by a double row of sutures. I use silk for all the sutures. The deeper row about a quarter of an inch from the edge of the opening into the sac, and not penetrating the whole thickness of the wall of the latter, unites the peritoneum of the sac with the peritoneum of the anterior wall of the abdomen. These sutures must be sufficiently near to each other (less than quarter of an inch apart), to hermetically close up the peritoneal cavity. The outer row of sutures passes through the entire thickness of the abscess wall, along the incision into the sac, and through the whole thickness of the abdominal wound, thus uniting the edge of the skin with the edge of the inner wall of the abscess cavity. The rest of the abdominal wound is then united in the usual way, after the removal of the large sponges and the necessary toilet of the abdominal cavity.

The question arises here, whether or not it is advisable to insert a drainage tube in the abdominal cavity. This depends, of course, entirely upon the amount of detached adhesions as in all other laparotomies. But in laparotomy for abscesses it is more desirable not to have a drainage tube in the abdominal cavity, because of the danger of a secondary infection from the fetid abscess cavity through the abdominal drainage tube, as it is practically almost impossible to effect a perfect seclusion between the abdominal tube and the tube leading into the ab-

¹ American Gynecological Association, Philadelphia, Sept., 1883; *Medical Record*, Sept. 22, 29, 1883.

scess. Such a necessity may, however, arise, and then the best course possible under the circumstances is to be pursued.

Heavy antiseptic dressing should be applied over the abdomen, and, also, an intra and extra-vaginal dressing sufficient to cover the drainage tube in the vagina. I consider iodoform in such cases especially valuable, when communication with the rectum makes it possible that fæces will come in contact with the abdominal wound. The dressing should be changed at least once a day, and the sac washed out with an antiseptic solution, for which I prefer saturated solution of boracic acid, as there is then no fear of poisoning. In other respects there is nothing in the after treatment worthy of especial mention. The drainage tubes should be shortened or removed, as the retraction of the sac and the diminution in the amount of pus discharged, demand. The sutures in the abdominal wound should be removed as usual; also the superficial row, uniting the sac with the skin; the deep row of sutures around the sac being left in permanently.

It is natural to expect that some infection may take place along the stitches at the lower end of the abdominal wound, between the sac and the symphysis, and that consequently an abscess may form here in the wall. This complication is, however, not likely to prove very serious, as the pus has already a ready-made exit along the stitches.

In close connection with the operation of laparotomy for peri-uterine abscess, the question naturally arises: would it not be safer in such cases, as it unquestionably is, in the opening of abscesses of the liver, to operate *in templa*, that is, to effect union of the surface of the sac with the anterior abdominal wall before the abscess is opened (Volkmann). The safety of performing the whole operation at one sitting will depend, to a certain extent, upon the skill of the operator; but Lawson Tait's record of thirty operations, each at one sitting, without a single accident, may be considered almost a definite answer to the question. There is, moreover, a very tangible difference between an abscess in this locality and an abscess in the liver in the following respects:

The liver participates in the respiratory movements; the peri-uterine abscess does not. The wall of an abscess of the

liver is friable, and furnishes a very insecure substratum for the application of sutures, while the walls of a peri-uterine abscess are thick and solid.

Regarding effective drainage of a peri-uterine abscess the question comes in of the advisability of a counter-opening through the vagina. Lawson Tait's experience, as well as my own, seems to indicate that the counter-opening through the vagina is not necessary, and I think I shall not resort to it in future operations, at least not at the time of operation. If, in the course of the after treatment, rise in temperature and the accumulation of pus in the lower part of the sac, should demand it, a counter-opening in the vagina can be made.

II. LAPAROTOMY AS COMPARED WITH OTHER OPERATIONS. When a peri-uterine abscess points somewhere in the vagina around the lower part of the uterus, no surgeon would, of course, think of doing anything, but opening the abscess, inserting a drainage tube, and by washing out, endeavoring to effect the closure of the cavity. But in some cases the opening into the vagina is just as ineffective as a spontaneous opening into the rectum. In obstinate cases of this kind laparotomy, at a later period, will have to be performed.

There is, however, no doubt that secondary invasion of septic poison, when the abscess is opened from the vagina, is much more difficult to prevent than invasion into the abscess from the abdominal opening. It is only in this way that we can account for the difference in the course of the after-treatment of peri-uterine abscesses opened through the vagina and through the abdominal cavity. A difference that Lawson Tait rightly calls attention to as being decidedly in favor of the abdominal operation. Here the abscess closes more quickly, and the course of the after-treatment is much less febrile than in the vaginal operation.

Sometimes a peri-uterine abscess will point into the rectum, sufficiently low down to permit of an opening here. It does not seem probable that the access from the rectum will be very promising, as effective drainage is next to impossible; but the cases of cure by spontaneous opening into the rectum evidently make an operation here permissible, and perhaps advisable, but only as a trial. If the abscess does not retract within a reasonable time, other measures must be resorted to.

It is needless to state that if a parametritic abscess points anywhere along the iliac fossa, it should be opened and drained from this point; but this does not belong to my subject of to-day, as I desire to call attention only to strictly circum-uterine abscesses, which can only be reached from the vagina or from the supra-pubic region.

When a circum-uterine abscess does not point downward, and, in fact, does not point anywhere, it is then the surgeon's task to find the safest way into the abscess through a smaller or larger amount of surrounding tissues.

We shall first consider the vaginal operation:

When so eminent an authority as Schröder, of Berlin, advocates this method of reaching a high peri-uterine abscess there must be cases in which this operation is advisable. From a general point of view an extra-peritoneal outlet of the abscess through the vagina would seem to be safer than laparotomy, upon the same grounds as a vaginal hysterectomy is safer than Freund's abdominal hysterectomy, and Schröder's successful operation, already mentioned, vouches for the method.

At the same time, I firmly agree with Lawson Tait, that there are some grave objections to the vaginal operation. In the first place, a high seated peri-uterine abscess is difficult to reach. It is difficult to work with safety two or three inches above the introitus of the vagina, in tissues that are immovable, and where the parts cannot be drawn down toward the operator. These difficulties are, of course, of less importance in the master hands of an operator like Schröder, but increase in significance for less experienced surgeons.

But the operation through the vagina is more or less an operation in the dark. As shown in fig. 1, we may be dissecting up along the posterior surface of the neck of the uterus, and may open into recesses of the peritoneal cavity between the abscess and the uterus. Further, it might be easy in this place to open into the rectum.

Another danger, especially in abscesses between the two layers of the lateral ligament, might easily arise from the rupture of the large uterine vessels running in the wall of the sac, as shown in the figures. It would be exceedingly difficult, and I should say next to impossible, under such circumstances, to

secure and ligate these vessels, the point of ligation being so high up, the working space so small, and the tissues so immovable.

All those objections and dangers we do not encounter in laparotomy. We can see distinctly, and recognize with our own eyes, every particle of tissue we have to divide, the large uterine vessels, if divided, can easily be taken up and ligated. There is no risk of having any communication between the abscess and the peritoneal cavity, which we cannot either close up or drain.

If the laparotomy lasts longer, and gives more technical work to the surgeon, it seems to me that these objections are fully balanced, by the advantage of not being obliged to operate in the dark, of not having to battle with enemies that we cannot see, and consequently cannot guard against.

But these are not the only advantages of laparotomy, as compared with the vaginal operation. The free access to the whole interior of the abscess cavity has also to be taken into account. By laparotomy, the abscess is laid open to about the same extent as a tubercular peri-articular abscess. We can examine the whole interior of such a cavity, and scrape off, or remove by other means, whatever objectionable material we may find, cheesy matter, tuberculous tissue, fungoid granulations—since we can see clearly every place where the instrument is applied, without any danger of going through the abscess wall into any surrounding cavity or organ.

It is more than possible that this free access to the abscess wall has something to do with the speedy recovery subsequent to laparotomy, as compared with the vaginal operation.¹

But, of course, there will always be connected with laparotomy the inherited dread of opening that ominous peritoneal cavity. Modern surgery, however, is making steady progress in diminishing these dangers. Thus, the dread, as well as the safety of the patient, will, to a great extent, rest in, or depend upon, the care and skill of the operator.

III. POINTS IN DIAGNOSIS. It is, of course, always important to know, in a given case, if a circum-uterine exudate contains pus, or if it is, as it may be in many cases for a long time,

¹Lawson Tait, *op. cit.*

or may always remain throughout, a solid mass. Even a large abscess will often seem to the touch just as firm or tense as a fibroid, or any other solid tumor.

As for the other differential diagnostic symptoms, tenderness and local heat are, of course, perfectly valueless. Bandl is hardly correct when he states¹ that the diagnosis of suppuration and formation of abscess in the pelvis is generally not difficult, because, as he says, we may expect pus when the evening fever increases, and rigors and night-sweats appear. There are certainly cases in which even a large abscess containing more than a pint of pus may be present without fever, rigors, or night-sweats. I have twice seen such a case.

The question now arises how to make sure of the presence of pus in peri-uterine exudate, that lasts so long, brings the patient down, and resists treatment so persistently that we have reason to suspect its presence. The first step, of course, to this end, is exploratory puncture through the vagina. When this is made by a fine aspirator needle, I believe it to be comparatively safe. Of course, the finer the needle, the safer will the operation be; but, at the same time, it may be that the pus is so thick or slimy that it will not pass out into the syringe. A larger needle or trocar, which, of course, may have to be introduced in different directions and different places, is not entirely harmless. Emmet says: "I cannot regard the introduction of the trocar, into the inflamed tissues of the pelvis, as a procedure free from danger, under all circumstances."

If, then, as is almost always the case, the abscess can be felt as a distinct tumor between the symphysis and umbilicus, the question of an exploratory puncture at this place might arise. I should never dare to do this, because the needle would pass through the abdominal cavity, in the majority of cases, and, when withdrawn from the abscess, would be followed by a drop of pus, sufficient to set up immediately a general acute peritonitis.

In consequence of this, and especially when the tumor presents above the symphysis pubis, I should feel inclined, even after unsuccessful vaginal exploration with capillary needles, to advise exploratory laparotomy. I would prefer to do this even

¹Die Krankheiten der Tuben und die Extra-Uterin Schwangerschaft.

if I had to encounter a solid tumor and close the abdomen again, rather than to expose the patient's life by too much exploratory puncture. I believe that exploratory laparotomy in such cases is less dangerous. I do not wish, however, to be understood as being an advocate of indiscriminate laparotomy for peri-uterine exudates, or for the mere satisfaction of a diagnosis; but I want this measure limited, of course, to obstinate chronic cases, where the very pertinacity of the exudate, even if no fever is present, indicates pus somewhere in the center of it, and makes the patient a confirmed invalid.

In cases like my three here published, where the abscess communicates with the rectum, there is, of course, no difficulty in diagnosis, and no need of preliminary explorations. But every experienced gynecologist knows, post-mortem reports in the literature show, and abscesses mistaken for fibroids prove, that a number of peri-uterine abscesses, having no communication with any cavity outside of the abscess wall, exist for a long time, with or without fever. It is for such cases, in my opinion, that exploratory laparotomy is indicated.

I had the opportunity, a few years ago, to make a post-mortem examination in a case of a large circum-uterine abscess (a patient of Dr. S. H. Stevenson, of this city), in which the patient had been an invalid for two years, and had traveled for her health two years in Europe and America. She finally died rather suddenly and unexpectedly, without having been confined to bed more than a day or two. A few hours previous to her collapse, a copious, purulent, bloody discharge from the rectum indicated a rupture into this organ. The post-mortem examination, although all important organs were examined, failed to reveal to me satisfactorily what the immediate cause of death was.

I further believe that it is dangerous to wait too long, in cases where we have every reason to suspect an abscess, before we operate, because the amyloid nephritis may, as shown in my second case, make us seriously regret the too late surgical interference.

In conclusion, I wish to pay a final compliment to Lawson Tait, the first advocate of free laparotomy in cases of this kind. It was the report of his first cases that gave me the courage to

operate in my first case. The more attention I have had the opportunity to pay to this subject, the more I believe he is right; and I believe also that he has accomplished a most important step forward in the successful surgical treatment of the ominous cases of chronic peri-uterine abscess.

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